DOCUMENT RESUME

ED 244 085 CE 038 912

TITLE Identification of High Growth Occupations. Job Corps Vocational Education Offerings Review. Documentation Report No. 2.
INSTITUTION Manpower Administration (DOL), Washington, D.C. Job Corps.
PUB DATE Sep 83
NOTE 135p.; For related documents, see CE 038 911-917.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Coordination; Data Analysis; Data Collection; *Demand Occupations; *Economically Disadvantaged; Educational Needs; Educational Practices; *Emerging Occupations; Employment Patterns; *Employment Projections; Futures (of Society); *Job Training; Labor Market; Labor Needs; National Programs; Postsecondary Education; Predictive Measurement; Program Effectiveness; Secondary Education; Tables (Data); *Vocational Education; Youth Programs
IDENTIFIERS Bureau of Labor Statistics; Evaluation Research; *Job Corps

ABSTRACT

As part of a multiphased evaluation of vocational training provided by the Job Corps in fiscal year 1982, a study examined Job Corps practices for identifying high growth occupations. At least for the present, national projections are the main source of information available to Job Corps planners for use in assessing future vocational training needs. In fiscal year 1982, the Job Corps offered training in 28 of the 32 Occupational Employment Survey (OES) titles projected to grow to more than 100,000 by 1990. Considering the limitations of projected employment changes from 1980 to 1990 as indicators of occupational demand in the labor market, Job Corps training was overwhelmingly well targeted. Insofar as alignment with the national labor market is concerned, it appears that only minimal changes are justified in the Job Corps occupational training mix. Fine tuning, not wholesale redirection, is indicated by labor market considerations. (Appended to this report are extensive tables dealing with economic and employment potentials, current and projected wage and salary patterns, and Job Corps vocational training structure.) (MN)

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ED244085

JOB CORPS

VOCATIONAL EDJCATION OFFERINGS REVIEW

Documentation Report No. 2

Identification of High Growth Occupations

September 1983

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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Documentation Report No. 2

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I. Economic Assumptions

The economic assumptions underlying assessment of occupational demand through the balance of this decade are drawn from the Administration's original FY 1984 budget estimates. Since economic assumptions are stated only through 1988, and the projections of employment growth by occupation are available only for 1990, the budget assumptions are supplemented by the Bureau of Labor Statistics' (BLS) most recently published projections - the Monthly Labor Review, August 1981.

The BLS 1990 occupational employment growth projections are based on three different sets of assumptions about economic performance and labor force growth. They are: low-trend projections, high trend I, and high trend II. Each is based on a variety of alternative assumptions subsumed broadly under five captions -- fiscal policy, labor force trends, productivity, unemployment and prices. Although none of the broad BLS assumptions perfectly fits the assumptions in the current budget, the low-trend alternative is closest in terms of GNP growth (constant dollars) and unemployment (see Table II-A-1). For this study, the BLS low-trend projection has the added advantage of "anticipating" more modest employment growth and, therefore, a more conservative assessment of demand with which to guide future Job Corps vocational education decisions.

Of peculiar significance to the Job Corps are the labor force trends over the last half of the decade which reflect underlying demographic patterns. Continuing the trend begun in the late 1970s, the population aged 16-24 years will decline further between 1985 and 1990.

The decline (for both young men and women) will slow substantially in the teens cohort and concentrate in the early 20's group. The population of blacks and other minority young men and women (16-24) will, for the first time, start to decline slightly in the last half of the '80s.1/

These population changes can be expected to be mirrored by changes in the labor force. With some exceptions, trends in labor force participation rates are assumed to remain about the same as in the low-trend scenario. The labor force decline among young women, both black and white, will be less substantial than their population loss because their participation rates will continue to rise. Lower participation rates among black young men will reduce their numbers in the labor force even more than would be implied by their population loss, adding to the already evident down turn by as early as 1985.2/

Thus, even though the economic scenario assumes an unemployment rate receding only slowly from almost 9.0% in 1985 to a still-substantial 6.0% by 1990, there will be markedly fewer teenagers and young adults competing for available entry level jobs. Reassessments of economic growth trends made subsequent to the FY 1984 Budget and forwarded to Congress, predicated a stronger recovery in the first half of 1983 than had been expected earlier. They indicate that this assumed economic scenario overstates unemployment in the last half of the 1980s. However, the BLS low-trend projections were consistent

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1/ See Howard N. Fullerton, Jr., "The 1995 Labor Force: A First Look MLR, December 1980, p. 14.

2/ Ibid., p. 16.

with the Budget projections when this study was first prepared. Therefore, they will be used, recognizing that employment growth by 1990 may be moderately greater than is indicated here.

An investigation to determine which jobs can be expected to offer a sufficient volume of openings over the next decade to make them worthy objectives of Job Corps vocational education involves two questions: (1) In which labor market areas do corpsmembers search for work upon leaving Job Corps, vis a vis the centers within which they received their training?, and (2) What is the expected volume of job openings in the "training" (or potential training) occupations in those areas?

Little can be said, on a reasonably consistent national basis, about area occupational demand over the next 5 or 6 years. In 1980, three-fourths of the population resided in 318 Metropolitan Statistical Areas in the U.S. Most of the jobs are also found there. While it is not totally unreasonable to assume that (with numerous industry-oriented occupational exceptions), by-and-large nationally projected occupational employment growth will be quite widely spread, if not exactly uniform. The fact remains that consistently developed discrete area projections are not available, nor can they be produced in any reasonable time frame.

While employment changes in many states have been projected for varying economic assumptions, consistently developed state projections are not available either. This lack could be remedied by a substantial special effort in a reasonable period of time -- but not in time to guide FY 1984 decision making.

This leaves the present study reliant upon national projections. Such national projections are produced or updated by the BLS every two

year. The most recently published occupational employment growth data, to 1990, was published in 1981. Needless to say, national estimates of future occupational job openings in some occupations (e.g., tugboat seaman, a Job Corps training offering), even if available and accurate, would be a poor guide to training offerings for certain labor markets. National estimates for some other occupations, e.g., computer operator, may much more adequately reflect almost universal growth. Nevertheless, the national projections of BLS are what are available, and therefore what are used in this review.

As indicated above, the BLS low-trend projections, reflecting low-trend labor force and occupational employment trend data are used.

The occupational employment projections for wage and salaried employment, a somewhat smaller subset of total employment, are used for this review because it is assumed that few if any corpsmembers will become gainfully self-employed, using their newly acquired skills, upon leaving Job Corps.

The first question stated above, where do ex-corpsmembers search for work vis a vis where they train, is even more difficult to answer precisely. As mentioned in greater detail in Documentation Report No. 1, there is a fair margin of mobility among corpsmembers, as to where they enroll vs. where they originally reside, and where they choose to reside (perchance to work) upon termination. In any event, the number involved in such geographic mobility cannot be written off as being of no consequence.

While this mobility necessitates reliance on national employment demand data, it also suggests that decisions on vocational education

offerings might better be made on a center-by-center basis in relation to where terminees expect to go to look for work after completing training.

II. Occupational Employment Projections

As has been noted, the data for choosing high growth occupations applicable to Job Corps enrollees came from the Bureau of Labor Statistics' (BLS) "National Industry-Occupation Employment Matrix projections to 1990". Use was also made of the National Occupation Information Coordinating Committee's (NOICC) edition of Vocational Preparation and Occupations (VPO). The chosen information was aggregated and organized through computer by a state affiliate of NOICC located in Des Moines, Iowa. The Iowa State Occupational Information Coordinating Committee staff used 1980 wage and salaried employment, the low-trend projection of 1990 employment growth in absolute numbers, and the resulting growth expected for each of the 670 occupations in the 1980 Census file. They combined these figures with information regarding educational level required and length of training needed for every D.O.T.-listed job under each of the OES occupational titles. They produced several reports which grouped jobs by the language/education level required and ranked them by the absolute change (increase in numbers employed) in employment from 1980 to 1990.

The occupations listed in Table II-B-2 represent those Occupational Employment Survey (OES) occupation titles which embrace jobs that are considered applicable to Job Corps enrollees. Each of these OES titles has at least one, if not several D.O.T.-defined jobs within it which meet the criteria of requiring the high school graduation or

less language level and a vocational training time period of greater than 90 days and less than two years.

The occupations in the Table II-B-2 are ranked according to the absolute change in number of jobs between 1980 and 1990. The first column lists the number employed in 1980; the second lists the BLS low-trend projected 1990 employment number; the third is the absolute change (1980-1990 employment); the fourth gives the percentage change; and the fifth column reports the ratio of applicable D.O.T. jobs under each OES occupational title (the number of jobs meeting Job Corps criteria compared with the total number of jobs listed under that OES title.)

Approximately 19% of Job Corps enrollees have a high school diploma when they enter Job Corps; another 14% study and pass a Graduate Equivalency Test (GED) certifying them as having a high school education. The average reading score of the Job Corps population is approximately 6th-grade level. Because of these population characteristics, only those jobs requiring a 12th-grade language level or less were identified to be considered for addition or expansion.

Because the average length of stay in Job Corps was about 8 months in FY 1982 and the average length of stay for program completers was 13.7 months, those occupations requiring more than two years of training were not chosen for examination. A great deal of diversity exists within Job Corps regarding the length of training time required to complete a program. Some occupations for which Job Corps provides training are rated by NOICC as requiring less

less than 90 days vocational training time and some need over two years. A few require a high language proficiency. Because of these differences, Table II-B-2 includes a few additions to the list produced by the screening criteria--length of training time and reading level. For example, Job Corps trains Sheet Metal Workers, which, according to NOICC, requires a training period of greater than two years. But, since it is a part of Job Corps' current vocational offerings, Sheet Metal Workers are included on Table II-B-2 despite exceeding the training time criterion. Other examples of Job Corps training programs which NOICC rates as exceeding the Screening Criterion are Tilesetter, Plasterer, Paperhanger, and Diesel Mechanic.

The list of occupations meeting the Job Corps criteria was further edited by another set of criteria. Each occupational title as defined for the OES is made up of a group of D.O.T.-defined jobs. It can include as many as 1,500 jobs or as few as one D.O.T. job. Those OES titles with a majority of D.O.T. titles which met the general educational and training time criteria of Job Corps were included. Those OES titles which had a very low proportion of applicable D.O.T. titles as well as those listed as "miscellaneous" or "not elsewhere classified" were eliminated. Any currently offered Job Corps training job title was left on the list or added where absent. The resulting list is considered to be the best possible readily available list of occupations against which to assess Job Corps vocational training potentialities for the second half of the 1980s.

All told, the number of OES occupations represented in this review of potential demand is 378. These occupations include

3,188 D.O.T. job titles which meet the Job Corps training screening criteria (about 75% of all 4,219 D.O.T.'s grouped in those OES titles). In FY 1982, Job Corps was training in 108 of the OES titles compiled for review, with training concentrated in the high demand occupations, as indicated in the following table (Table A). Job Corps offered training in 28 of the 32 OES titles projected to grow to more than 100,000 by 1990, and in 19 of 27 with growth expected in the 50,000 to 99,999 range. At the other end of the scale, training was offered in 5 of 81 OES titles in which employment was projected to show little or no growth, or actually decline.

Replacement needs have been grossly estimated but are not used subsequently as a variable in the criteria to identify prospective new training occupations. The Bureau of Labor Statistics does not produce replacement data on all of the OES occupations. They do provide a document with replacement information on approximately 40 occupations and a description of the method by which those replacement needs were derived. In almost all cases, entry level jobs, particularly those with low educational requirements, have high replacement needs because those jobs are often stepping stones to other pursuits.

In order to give some consideration to replacement needs in this assessment (which, overall, BLS estimates will account for 9 out of 10 job openings), replacement estimates are included in Table II-B-2 for all the OES occupations for which any increase in employment was projected. These are presented in column 6 and, added to growth projections, are presented in column 7 as estimates of total wage and salaried job openings by 1990.

Table A

OES Titles Meeting Job Corps Specifications

(Number of OES Occupational Titles Which Include D.O.T. Job Titles Which Meet the Reading Level and Vocational Preparation Time Criteria for Job Corps Vocational Training, Number of D.O.T. Job Titles Included, and OES Titles in Which One or More Job Corps FY 1982 Terminees was Trained, by OES Projected Employment Growth 1980 - 1990.)

OES Projected Employment Increase 1980-1990	OES OCCUPATIONS			
	Number	Number of D.O.T. Titles Included in OES Occupations		Number in Which Job Corps Trained in FY 1982
		Total	Meet JC Criteria	
Total Listed	378	4,219	3,188	108
100,000 or more	32	1,512	1,062	28
50,000 to 99,999	27	488	346	19
25,000 to 49,999	30	346	242	18
10,000 to 25,999	50	635	521	18
5,000 to 9,999	48	256	200	11
1,000 to 4,999	110	540	441	9
999 to (-999)	62	301	251	2
(-1,000 or greater)	19	80	86	3

These replacement estimates were calculated by applying the ratio of replacement needs to employment growth estimated by BLS (published in Occupational Projections and Training Data, 1982, edition, December 1982), for the occupation group (e.g., clerical workers) into which each specific occupational title is summarized. These aggregates (see Table II-B-1), are the only way in which such estimates are available. For several of the occupations (indicated on the Table II-B-2), BLS has published discrete estimates, relating albeit, to total employment not only wage and salaried. Where available, the ratios used in calculating replacement needs in this study were computed from the discrete occupational estimates.

Because of the questionable reliability of the calculations of "job openings available," they are used in this study only as confirming indicators of "substantial labor market demand" in the various occupations during the rest of the '80s.

It is realized that the data presented reflect only the demand side of the future labor market and say nothing about supply, and therefore nothing about net demand -- or anticipated additional training output needed. The data on existing training, by occupation, are dated (e.g., related to 1979 or 1980). Extrapolation of those numbers, which can be arrayed through the 10 years of the 1980s, is not likely to provide reasonable estimates of accumulated training graduates. Nevertheless, on a trial basis the numbers reported as completing training in the several institutional settings published by BLS (Occupational Projections and Training Data) were summed and extrapolated to 1990 accumulations for occupations such as Computer Operators and Welders and Flamecutters. These estimates of supply fell far short of the estimates of "job openings" for these

occupations. Even though inadequate, representation of "occupational demand" by the absolute employment changes protected to 1990 will have to suffice for the present review. Moreover, many "completers" of vocational curricula do not pursue working careers in this training fields -- so impact of "training supply" on employment demand is speculative. Finally, as BLS published the revised estimates of general replacement needs based on the Current Population Survey (CPS) data, they observed that very large proportions of occupational supply appeared to come from workers already in the labor force who were transferring into new job areas.

Overall, the Job Corps' training occupations in FY 1982 were reasonably in tune with the labor market of the 1980s. Considering limitations of the projected employment changes 1980 to 1990 as indicators of occupational demand in the labor market, Job Corps training was overwhelmingly well targeted.

Table B summarizes Job Corps training (reviewed in detail in Documentation Report No. 1) in the 80 occupations in which 25 or more corpsmembers terminees were trained. The summary includes the employment change projected for each OES occupational title which contains a Job Corps training occupation. (see attached Table II-C-1 for occupational crosswalk). Virtually three out of five Job Corpsmembers were trained in the 26 OES occupations in which employment growth of over 100,000 was projected. Almost 95% were trained in occupations in which employment was projected to increase 10,000 or more.

On the other hand, only 1.7% of the 32,065 corpsmember terminees in FY 1982 were in the four training occupations in which projected employment changes were negative.

Table B

Summary of Occupations with 25 + Terminees

Number of Corpsmembers Trained in Occupations in which there were 25 or More Terminees in FY 1982, Ranked by Projected Employment Change 1980 to 1990

OES Employment Change Projected 1980 to 1990	Number of Job Corps Training Occupations	Number of Terminees Trained			
		Number	Percent Distribution	Cumulative Number	Cumulative % Dist.
Total	80	32,065	100.0	32,065	100.0
100,000 or more	26	19,162	59.8	19,162	59.8
50,000 to 99,999	14	5,770	17.9	24,932	77.8
25,000 to 49,999	14	3,867	12.1	28,799	89.8
10,000 to 24,999	12	1,560	4.9	30,359	94.7
5,000 to 9,999	5	476	1.5	30,835	96.2
1,000 to 4,999	5	679	2.1	31,514	98.3
999 to -999	1	34	.1	31,548	98.4
-1,000 or more	3	517	1.6	32,065	100.0

Insofar as alignment with the national labor market is concerned, it appears that only minimal changes are justified in the Job Corps occupational training mix. Fine tuning, not wholesale redirection is indicated by labor market considerations.

Table II-A-1

Economic Projections, 1985-1990

($ in billions)

Selected Economic Indicators	Administration's FY 1984 Budget -- Out Years				BLS 1990 Projection Low Alternative	
	1985	1986	1987	1988	1989	1990
Gross National Product						
Current Dollars	3,890	4,232	4,599	4,995	--	--
Percent Change	9.1	8.8	8.7	8.6	--	--
Constant Dollars (1972)	1,617	1,682	1,749	1,819	--	1,902*
Percent Change	4.0	4.0	4.0	4.0	2.8	2.8
Unemployed (000)	10,400	9.600	8,800	8,000	--	7,342
Unemployment Rate	8.9	8.1	7.3	6.5	6.2	6.0

Source: The Budget of the United States 1984, Part 2, Economic Assumptions and the Budget, and BLS, Monthly Labor Review, August 1981, Norman C. Saunders, "The U.S. Economy Through 1990 -- an update," pp. 18-27.

*Figure is actual BLS projection. Application of the BLS assumed annual GNP growth rate 1985-90 (2.8%) to the Administration's 1988 figure yields a slightly higher 1990 GNP than that projected -- $1,922 B.

TABLE II-B-1. Wage and Salaried Employment, 1980 and Projected 1990, Absolute Change, and Ratio of Replacement Needs to Employment Growth

SUMMARY

Occupational Group	1980 Employment	1990 Projected	1980-1990 Change	Ratio of 1/ Replacement Needs/Employment Change	Estimated Replacement Needs 1/	Estimated Job Openings by 1990 1/	Estimated Job Openings Average Amount 1/
Total, all occupations	92,907,012	110,053,413	17,146,401	n.a.	197,030,592	214,001,738	21,400,000
Professional/Technical and Related Workers	14,971,328	18,056,284	3,084,956	6.15-1	18,972,479	22,057,435	2,206,001
Managers, Officials and Proprietors	7,557,359	8,958,533	1,041,174	9.51-1	9,901,565	10,942,738	1,093,000
Sales Workers	5,840,010	6,993,971	1,153,961	13.51-1	15,590,013	16,743,974	1,674,000
Clerical Workers	18,521,980	22,040,406	3,518,426	12.55-1	44,156,246	47,674,672	4,767,000
Craft and Related Workers	11,012,538	12,949,930	1,937,392	8.65-1	16,758,440	18,695,832	1,870,000
Operatives, except Transport	10,450,664	11,872,707	1,422,043	16.19-1	23,022,876	24,444,919	2,444,000
Transport Operatives	3,300,172	3,863,772	563,600	10.37-1	5,844,532	6,408,132	641,000
Service Workers, except Private Household	13,733,587	17,171,583	3,437,996	12.60-1	43,318,749	46,756,745	4,676,000
Private Household Service Workers	979,002	972,494	- 6,508	xxx	385,000	385,000	39,000
Laborers, except Farm	5,589,369	6,400,968	811,599	23.51-1	19,080,692	19,892,291	1,989,000
Farmers and Farm Workers	951,003	772,765	-178,238	xxx	ina	ina	ina

Source: BLS, Law Alternative

1/ Based on BLS estimates, Occupational Projections and Training Data, 1982. BLS, Table 3, p. 10. Original data pertain to total employment; adapted to Wage and Salaried employment in this paper.

Table II-B-2

Wage and Salaried Employment in Selected Occupations, 1980 and Projected 1990, in Decending Order of Absolute Change

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 100,000 or more							
*All other managers	5,639,896	6,652,545	1,012,649	18.0	46/387		
*Secretaries	2,396,431	3,097,174	700,743	29.2	5/6	# 5,050,000	5,750,743
*All other Sales Workers	2,707,024	3,243,298	536,274	19.8	61/70	7,245,061	7,781,335
*Nurses Aides and Orderlies	1,169,700	1,676,359	506,359	43.3	4/4	6,383,903	6,890,562
*Janitors & Sextons	2,685,189	3,176,649	491,460	18.3	13/13	6,192,396	6,683,856
*Sales Clerks	2,623,564	3,088,895	465,331	17.7	15/15	#11,350,000	11,851,331
*Cashiers	1,553,844	2,000,281	446,437	28.7	17/17	# 6,030,000	6,476,437
*Nurses, Professional	1,067,561	1,505,009	437,448	41.0	0/15	2,690,305	3,127,753
*General Clerks, Office	2,388,050	2,754,823	366,773	15.4	7/7	4,603,001	4,949,774
*Waiter/Waitress	1,689,552	2,051,040	361,488	21.4	7/7	7,520,000	7,881,488
*Truck Drivers	1,539,163	1,895,385	356,222	23.1	21/21	3,694,022	4,050,244

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 100,000 or more							
Preschool and/or Elementary Teachers	1,740,727	2,089,741	349,014	20.0	1/3	#1,870,600	2,219,614
*All other Assemblers	1,214,894	1,455,955	241,061	19.8	369/392	3,902,777	4,143,838
*Kitchen Helpers	837,799	1,069,579	231,780	27.7	7/7	2,920,428	3,152,208
*Helper, Trades	952,021	1,161,281	209,260	22.0	108/108	4,919,702	5,128,962
*Typist	1,053,592	1,237,755	184,163	17.5	10/10	#2,800,000	2,984,163
*Automotive Mechanics	691,038	870,980	179,942	26.0	17/29	#1,262,000	1,441,942
*Licensed Practical Nurses	510,391	688,267	177,876	34.9	1/1	# 930,000	1,107,876
*All other clerical workers	1,100,860	1,275,675	174,815	15.9	187/193	2,193,928	2,368,743

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase	100,000 or more						
*Bookkeepers, Hand	899,370	1,068,236	168,866	18.8	2/2	2,119,268	2,288,134
*Guards and Doorkeepers	646,567	799,287	152,720	23.6	9/9	1,924,272	2,076,992
*Stock Clerks, Stockroom and Warehouse	818,435	960,611	142,176	17.4	25/25	1,784,308	1,926,484
*Computer Operators	184,245	316,385	132,140	71.7	1/1	# 520,000	652,140
*Maintenance repairers general utility	650,125	776,770	126,645	19.5		1,095,479	1,222,124
Stock Clerk, Sales Floor	592,930	714,604	121,674	20.5	1/1	1,527,008	1,648,682
*Carpenters	670,841	789,955	119,114	17.8	9/26	#1,630,000	1,749,114
Computer Programmers	226,182	338,038	111,856	49.5	1/6	# 250,000	361,856
All other Service Workers	518,198	629,730	111,532	21.5	51/55	1,405,303	1,516,835

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 100,000 or more							
*All other Food Service Workers	601,315	712,075	110,760	18.4	14/15	1,395,576	1,506,336
*Tellers	427,615	535,842	108,227	25.3	6/6	1,130,000	1,238,227
*Welders and Flame-cutters	534,312	641,375	107,063	20.0	47/54	940,000	1,047,063
*Electrical and Electronic Technicans	358,077	464,918	106,841	29.8	0/7	924,174	1,031,015
Increase 50,000 to 99,999							
*Receptionists	396,227	493,733	97,506	24.6	3/3	1,223,700	1,321,206
*Accounting Clerks	712,444	806,996	94,552	13.3	48/48	1,186,627	1,281,179
*Cooks, Short Order and Specialty Fast Foods	437,331	530,867	93,536	21.4	4/4	1,178,553	1,272,089
*Electricians	506,455	597,072	90,617	17.9	4/22	520,000	610,617

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 50,000 to 99,999							
*Drafters	315,967	403,651	87,684	27.8	2/38	# 460,000	547,684
*Cooks, Restaurant	336,527	423,247	86,720	25.8	4/10	#3,750,000	3,836,720
Delivery and Route Workers	795,516	881,605	86,089	10.8	6/6	892,742	978,831
*Teachers' Aides except Monitors	414,953	493,009	78,056	18.8	3/3	480,044	558,100
*Child care workers	265,484	343,517	78,033	29.4	2/2	983,215	1,061,248
*Data Processing Machine Mechanics	82,750	160,046	77,296	93.4	1/4	# 110,000	187,296
*Gardeners and Groundskeepers, except Farm	542,202	617,843	75,641	14.0	8/9	953,076	1,028,717
*All other Engineering and Science Technicians	400,331	474,700	74,369	18.6	37/89	457,369	531,738
*Fuel Pump Attendants and Lubricators	390,388	464,488	74,100	19.0	4/4	640,965	715,065

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 50,000 to 99,999							
*Heavy Equipment Operators	419,135	491,798	72,663	17.3	33/34	753,515	826,178
*Plumbers and Pipefitters	343,511	415,316	71,805	20.9	4/14	# 440,000	511,805
*Police Patrolmen/ Women	392,977	458,928	65,951	16.8	5/5	830,982	896,933
Misc. Machine Operatives, Rubber and Misc. Plastic	214,438	279,807	65,369	30.5	1/1	1,058,324	1,123,693
*Industrial Truck Operators	398,636	457,992	59,356	14.9	9/9	615,521	674,877
Shipping and Receiving Clerks	389,218	447,796	58,578	15.1	18/19	735,153	793,731
Sales Agents and Representatives, Real Estate	108,721	164,801	56,080	51.6	2/4	757,640	813,720
*Cooks, Institutional	295,540	351,542	56,002	18.9	6/7	705,625	761,705

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 50,000 to 99,999							
Maintenance Mechanics	336,999	392,147	55,148	16.4	16/37	477,030	532,178
*Dental Assistants	137,425	191,785	54,360	39.6	1/1	# 390,000	444,360
@File Clerks	269,516	323,765	54,249	20.1	9/9	680,824	735,073
All Other Health Technologists and Technicians	191,123	244,162	53,039	27.8	8/18	326,189	379,228
Production Packagers	608,941	660,633	51,692	8.5	80/80	836,893	888,585
Shipping Packers	345,357	397,028	51,671	15.0	8/8	836,553	888,224
Increase 25,000 to 49,999							
Correction Officials and Jailers	103,433	151,561	48,128	46.5	4/4	606,412	654,540
*Machinists	274,067	318,322	44,255	16.1	0/11	716,488	760,743
*Order Fillers	355,796	399,266	43,470	12.2	3/3	267,340	310,810

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 25,000 to 49,999							
Bus Drivers	278,771	320,513	41,742	15.0	3/3	432,864	474,606
Buyers, Retail and Wholesale Trade	221,549	263,210	41,661	18.8	2/3	562,840	604,501
Sales Agents and Representatives, Insurance	240,356	280,033	39,677	16.5	1/1	244,013	283,690
*Diesel Mechanics	170,176	208,614	38,438	22.6	0/6	332,488	370,926
Hosts/Hostesses, Restaurant, Lounge Coffee Shop	114,879	153,091	38,212	33.3	1/1	330,533	368,745
*Concrete and Terrazo Finishers	103,313	140,411	37,098	35.9	1/6	320,897	357,995
Fire Fighters	219,153	255,767	36,614	16.7	5/5	461,336	497,950
Order Clerks	242,547	278,781	36,234	14.9	7/7	454,736	490,970
Bookkeeping, Billing Machine Operators	176,588	211,716	35,128	19.9	6/6	474,579	509,707

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 25,000 to 49,999							
Punch Press Operators, Metal	182,634	216,910	34,276	18.8	18/18	554,928	589,204
*Brickmasons	105,646	139,621	33,975	32.2	0/4	# 320,000	353,975
*X-Ray Technicians	91,086	124,995	33,909	37.2	-	208,540	242,449
Production Clerks	200,029	233,902	33,873	16.9	44/44	425,106	458,979
*Painters, Construction & Maintenance	227,928	261,768	33,840	14.8	1/6	292,716	326,556
*Sheet Metal Workers	211,538	244,608	33,070	15.6	0/5	# 150,000	183,070
*Psychiatric Aides	82,081	114,889	32,808	40.0	1/1	413,380	446,188
Payroll and Time-Keeping Clerks	177,785	209,894	32,109	18.1	5/5	402,967	435,076
*Office Machine and Cash Register Servicers	51,236	83,224	31,988	62.4	3/8	276,696	308,684
Welfare Service Aides	94,509	126,414	31,905	33.8	3/3	196,215	228,120

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 25,000 to 49,999							
*Medical Technicians	87,728	118,768	31,040	35.4	1/2	190,896	221,936
*Air Conditioning, Heating & Refrigeration Mechanic	147,857	178,246	30,389	20.6	2/9	# 380,000	410,389
*Lathe Machine Operators, Metal	155,941	185,345	29,404	18.9	33/38	476,050	505,454
*Machine Tool Operators, Combination	170,543	199,627	29,084	17.1	5/6	470,869	499,953
*All other Mechanics Installers and Repairers	205,824	234,062	28,238	13.7	85/133	457,173	485,411
*Cosmetologists and Womens Hairstylists	230,392	257,845	27,453	11.9	3/3	# 700,000	727,453
*Medical Assistants	88,670	115,117	26,447	29.8	4/4	333,232	359,679
*Highway Maintenance Workers	186,000	211,178	25,178	13.5	1/1	217,789	242,967

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
Claims Clerks	64,331	89,283	24,952	38.8	2/2	313,147	338,099
*Butchers and Meat Cutters	177,281	201,204	23,923	13.5	6/6	301,429	325,352
Painters, Production	108,340	131,994	23,654	21.8	48/52	382,958	406,612
*Miscellaneous Operatives, Nec. Durable Goods	99,144	122,919	23,775	24.0	48/54	384,917	408,692
Insurance Clerks, Medical	68,808	92,350	23,542	34.2	1/1	295,452	318,994
Dental Hygienists	59,462	82,924	23,462	39.5	1/1	144,291	167,753
Sewing Machine Operators, Regular Equipment, Non-Garment	136,199	159,610	23,411	17.2	25/25	# 210,000	233,411
*Auto Body Repairers	114,245	137,569	23,324	20.4	3/4	201,752	225,076
Drill Press and Boring Machine Operators	124,232	147,313	23,081	18.6	20/22	373,681	396,762

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
*Grinding and Abrading Machine Operators, Metal	128,090	150,158	22,068	17.2	38/44	357,280	379,348
*Recreation Workers Group	127,618	149,509	21,891	17.2	3/4	275,826	297,717
Travel Agents and Accommodations Appraisers	48,895	70,738	21,843	44.7	2/2	295,098	316,941
Peripheral EDP Equipment Operators	48,555	69,984	21,429	44.1	3/3	268,933	290,362
*Pantry, Sandwich, and Coffee Makers	71,334	91,561	20,227	28.4	4/4	254,860	275,087
Washers, Machine and Starchers	59,143	78,629	19,486	32.9	1/1	315,478	334,964
*All Other Technicians, except Health, Science and Engineering	107,720	126,482	18,762	17.4	16/41	115,386	134,148

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
Mail Carriers, Postal Service	241,510	260,087	18,577	7.7	2/2	233,141	251,718
Crane, Derrick and Hoist Operators	124,753	142,228	17,475	14.0	30/33	282,920	300,395
Dispatchers, Vehicle Service or Work	89,509	106,242	16,733	18.7	10/10	209,999	226,732
Personnel Clerks	94,829	111,401	16,572	17.5	5/5	207,978	224,550
*All Other Office Machine Operators	83,436	99,701	16,265	19.5	17/17	100,029	116,294
Testers	105,641	119,790	14,149	13.4	130/144	229,072	243,221
Recreation Facility Attendants	68,622	82,716	14,094	20.5	9/9	177,584	191,678
Cabinetmakers	51,318	65,028	13,710	26.7	2/2	118,591	132,301
*Radio and Television Repairers	51,559	65,065	13,506	26.2	3/7	# 150,000	163,506

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
*Mail Clerks	80,469	93,874	13,405	16.7	11/11	168,232	181,637
@ Drywall Applicators	37,876	51,106	13,230	34.9	2/3	114,439	127,669
@ Painters, Automotive	35,729	48,958	13,229	37.0	1/1	214,177	227,406
Housekeepers, Private Household	86,000	99,064	13,064	15.2	3/3	164,606	177,670
*Asbestos and Insulation Workers	42,408	55,385	12,977	30.6	2/5	112,251	125,228
Roofers	77,538	89,929	12,391	16.0	2/3	107,152	119,573
Surgical Technicians	31,342	43,682	12,340	39.4	1/1	75,891	88,231
Proof Machine Operators	47,499	59,803	12,304	25.9	1/1	154,415	166,719
New Accounts Tellers	52,662	64,856	12,194	23.2	1/1	153,034	165,228
Announcers	42,542	54,380	11,838	27.8	1/2	72,803	84,641

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
Dental Lab Technicians	43,367	55,194	11,827	27.3	11/14	# 21,000	32,692
Surveyor Helpers	55,515	67,207	11,692	21.1	1/1	71,905	83,597
*Surveyors	55,636	67,204	11,568	20.8	0/13	71,143	82,711
*Installers, Repairers and Section Maintenance	74,974	86,489	11,515	15.4	0/5	99,604	111,119
*Offset Litho-graphic Press Operators	78,984	90,256	11,272	14.3	2/5	152,493	193,765
Credit Clerks, Banking and Insurance	50,271	61,516	11,245	22.4	4/4	141,124	152,369
Statement Clerks	32,510	43,541	11,031	33.9	1/1	138,439	149,470
Desk Clerks, except Bowling Floor	79,831	90,813	10,982	13.8	1/1	137,824	148,806

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 10,000 to 24,999							
*Manual Arts, Music, Recreational Therapists	22,549	33,487	10,938	48.5	1/3	67,268	78,206
Auto Service Department Managers	46,769	57,463	10,694	22.9	1/1	101,699	112,393
*Milling and Planning Machine Operators	72,061	82,678	10,617	14.7	27/33	171,889	182,506
Machine Tool Setters, Metal-working	55,312	65,606	10,294	18.6	8/11	166,659	176,953
*Animal Caretakers	79,051	89,273	10,222	12.9	8/8	128,797	139,019
Ambulance Drivers and Ambulance Attendants	31,258	41,356	10,098	32.3	2/2	104,716	114,814
*Engineering Equipment Mechanics	89,099	99,012	10,003	11.2	0/5	86,525	96,528

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 5,000 to 9,999							
*Bakers	56,074	65,832	9,758	17.4	2/8	122,950	132,708
Tapers	28,776	38,399	9,623	33.4	1/1	83,238	92,861
Child Care Attendants	24,108	33,497	9,389	38.9	3/3	118,301	127,690
*Switchboard Operators	182,756	192,016	9,260	5.1	4/4	116,213	125,473
Messengers	50,040	59,182	9,142	18.3	7/7	114,732	123,874
*Bakers, Bread and Pastry	41,984	51,121	9,137	21.8	2/6	115,126	124,263
Statistical Clerks	84,689	93,821	9,132	10.8	5/5	114,606	123,738
Game and Ride Operators and Concession Workers	27,822	36,710	8,888	31.9	9/9	120,076	128,964
Police Detective	63,348	72,188	8,840	14.0	1/8	111,384	120,224
Dispatchers, Police, Fire & Ambulance	50,972	59,614	8,642	17.0	3/3	108,457	117,099

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 5,000 to 9,999							
Opticians	32,887	41,427	8,540	26.0	6/11	52,521	61,061
*Glaziers	34,303	42,822	8,519	24.8	3/5	73,689	82,208
Machine Tool Operators, Numerical Control	52,627	61,079	8,452	16.1	6/8	136,837	145,289
Conveyor Operators and Tenders	50,419	58,746	8,327	16.5	18/18	134,814	143,141
Pipelayers	45,875	54,198	8,323	18.1	1/1	71,993	80,316
Adjustment Clerks	35,422	43,689	8,267	23.3	4/4	103,750	112,027
*Exterminators	25,607	33,704	8,097	31.6	1/1	131,090	139,187
Store Detectives	18,279	26,109	7,830	42.8	4/5	98,658	106,488
*Tailors	59,547	67,262	7,715	13.0	2/6	66,639	74,354
*Inhalation Therapists	17,533	25,237	7,704	43.9	1/1	47,379	55,083
Carpet Cutters and Layers	30,473	38,018	7,545	24.8	2/3	65,264	72,809

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 5,000 to 9,999							
Reinforcing-Iron Workers	34,227	41,694	7,467	21.8	2/2	120,890	128,357
Pharmacy Helpers	22,869	30,122	7,253	31.7	2/2	44,605	51,858
Oilers	40,653	47,845	7,192	17.7	6/6	116,438	123,630
Raters	55,786	62,729	6,943	12.4	1/1	87,134	94,077
Loan Closers	24,024	30,957	6,933	28.9	2/2		
Photographic Process Workers	73,626	80,358	6,732	9.1	20/26	58,231	64,963
Camera Operators, Printing	21,692	28,404	6,712	30.9	1/4	58,058	64,779
Sewing Machine Operators Special Equipment, Nongarment	38,937	45,528	6,591	16.9	20/20	106,708	113,299
*EKG Technicians	19,550	26,062	6,512	33.3	1/1	40,048	46,560
Electroplators	37,088	43,599	6,511	17.6	8/11	105,413	111,924

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 5,000 to 9,999							
Real Estate Clerks	15,599	22,036	6,437	41.3	1/1	80,754	87,221
*Ceiling Tile Installers and Floor Layers	20,094	26,414	6,320	31.5	2/5	54,668	60,988
Procurement Clerks	40,274	46,512	6,238	15.5	3/3	78,286	84,524
Chauffeurs	42,047	48,205	6,158	14.6	3/3	77,590	83,745
Electric Motor Repairers	18,456	24,454	5,998	32.5	2/7	51,883	57,880
Service Clerks	22,842	28,665	5,823	25.5	2/2	73,078	78,901
Shear and Slitter Operators, Metal	30,380	35,999	5,619	18.5	8/8	90,971	96,590
Sanders, Wood	20,684	26,251	5,567	26.9	15/15	48,154	53,721
Lifeguards	19,499	24,971	5,472	28.1	1/1	68,947	74,419
Assessors	32,383	37,820	5,437	16.8	1/2	33,437	38,874
Title Searchers	6,936	12,358	5,422	78.2	1/1	68,046	73,468

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 5,000 to 9,999							
*Physical Therapy Technicians	10,607	16,017	5,410	51.0	2/2	33,271	38,681
*Upholsterers	20,877	26,217	5,340	25.6	5/6	46,191	51,531
*Water Treatment Plant Operators	29,702	34,863	5,161	17.4	2/2	44,642	49,803
Merchandise Displayers and Window Trimmers	21,072	26,191	5,119	24.3	1/1	69,157	74,276
*Tile Setters	15,272	20,371	5,099	33.4	1/3	44,106	49,205
Roof Bolters	12,664	17,701	5,037	39.8	2/2	43,570	48,607
Increase 1,000 to 4,999							
Policy Change Clerks	26,500	31,425	4,925	18.6	2/2	61,808	66,733
Shuttle Car Operators	13,051	17,956	4,905	37.6	1/1	50,864	55,769
Town Clerks	28,383	33,281	4,898	17.3	1/1	61,469	66,367

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Riggers	28,284	33,074	4,790	16.9	2/2	112,612	117,402
Barbers	30,386	34,998	4,612	15.2	2/2	58,111	62,723
Continuous Mining Machine Operators	8,356	12,967	4,611	55.2	1/1	74,652	79,263
*Duplicating Machine Operators	33,524	38,088	4,564	13.6	5/5	57,278	61,842
Library Assistants	118,810	123,210	4,400	3.7	5/5	27,060	31,460
Wirers, Electronic	30,611	34,989	4,378	14.3	4/4	37,869	42,247
Court Clerks	25,809	30,127	4,318	16.7	1/1	54,190	58,508
Heat Treaters	25,103	29,361	4,258	17.0	13/17	36,831	41,089
Drillers, Hand and Machine	15,243	19,421	4,178	27.4	4/4	67,641	71,819
Punch Press Setters, Metal	19,141	23,243	4,102	21.4	1/1	35,482	39,660
Pourers, Metal	15,311	19,399	4,088	26.7	2/2	35,361	39,449

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Farm Equipment Mechanics	19,451	23,515	4,064	20.9	1/5	35,153	39,217
Car Rental Clerks	16,353	20,398	4,045	24.7	1/1	50,764	54,809
Housekeepers, Hotel and Motel	18,278	22,228	3,950	21.6	3/3	49,770	53,720
*Gas and Electric Appliance Repairers	49,716	53,644	3,928	7.9	3/5	33,977	37,905
Sheriffs	22,226	26,061	3,835	17.3	2/2	48,321	52,156
Brokerage Clerks	12,803	16,579	3,776	29.5	2/2	47,388	51,164
Press Operators and Plate Printers	35,285	38,942	3,657	10.4	18/19	59,206	62,863
Traffic Agents	18,218	21,827	3,609	19.8	1/2	45,292	48,901
Cut-Off Saw Operators, Lumber	16,521	20,109	3,588	21.7	4/4	58,089	61,677
Sawyers, Metal	18,136	21,398	3,262	18.0	7/7	28,216	31,478

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Upholstery Workers, Nec	15,500	18,746	3,246	20.9	17/17	28,077	31,323
Crossing or Bridge Tenders	29,261	32,309	3,048	10.4	3/3	49,347	52,395
Twister Tenders	14,357	17,368	3,011	21.0	3/3	48,748	51,759
Riveters	14,161	17,103	2,942	20.8	11/11	25,448	28,390
Layout Markers, Metal	20,665	23,590	2,925	14.2	1/2	25,301	28,226
Cutters, Machine	28,110	31,011	2,901	10.3	40/40	25,093	27,994
Furnace Operators, Cupola Tenders	16,885	19,781	2,896	17.2	8/8	25,050	27,946
Termite Treaters and Helpers	8,754	11,608	2,854	32.6	2/2	24,687	27,541
Musical Instrument Repairers	5,634	8,481	2,847	50.5	12/18	24,626	27,473
Mortgage Closing Clerks	21,725	24,519	2,794	12.9	1/1	35,064	37,858

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	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Rate Clerks, Freight	11,150	13,794	2,644	23.7	6/6	33,182	35,826
Proofreaders	19,428	22,048	2,620	13.5	4/6	32,881	35,501
Foresters	27,330	29,928	2,598	9.5	1/7	22,472	25,070
Bookbinders, Hand and Machine	23,259	25,836	2,577	11.1	12/14	41,721	44,298
Blasters	8,975	11,537	2,562	28.5	4/7	41,478	44,040
Ripsaw Operators	11,672	14,219	2,547	21.8	1/1	41,235	43,782
All Other Metal-working Craft Workers	11,832	14,364	2,532	21.4	10/12	21,901	24,433
Coin Machine Servicers and Repairers	26,733	29,200	2,467	9.2	1/1	21,339	23,806
Dip Platers, Nonelectrolytic	12,974	15,437	2,463	19.0	4/5	21,304	23,767

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Auto Repair Service Estimators	9,482	11,892	2,410	25.4	1/4	20,846	23,256
Insurance Checkers	12,842	15,242	2,400	18.7	3/3	30,120	32,520
Meter Readers, Utilities	30,024	32,379	2,355	7.8	1/1	29,555	31,910
Molders, Machine	18,782	21,091	2,309	12.3	1/1	19,972	22,281
Contribution Solicitors	6,715	9,023	2,308	34.4	1/2	28,965	31,273
Transit Clerks	9,573	11,824	2,251	23.5	3/3	28,250	30,501
Loading Machine Operators	6,962	9,191	2,229	32.0	1/1	36,087	38,316
Crating and Moving Estimators	6,736	8,962	2,226	33.0	1/1	19,254	21,480
Glass Installers	5,115	7,279	2,164	42.3	1/1	18,718	20,882
Locksmiths	6,254	8,386	2,132	34.1	2/2	18,441	20,573
Machine Setters, Plastic Materials	7,415	9,545	2,130	28.7	1/1	34,484	36,614

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
*Sewage Plant Operators	41,188	43,265	2,077	5.0	2/2	19,752	21,829
Stationery Boiler Firers	48,188	50,263	2,075	4.3	3/4	17,948	20,023
Traffic Clerks	6,649	8,713	2,064	31.0	2/2	25,903	27,967
Auto Seat Cover and Top Installer	4,747	6,759	2,012	42.4	3/3	17,403	19,415
Lens Grinders	8,069	10,047	1,978	24.5	5/9	17,109	19,087
Claims Takers, Unemployment Benefits	15,184	17,140	1,956	12.9	1/1	24,547	26,503
All Other Sawyers	14,291	16,212	1,921	13.4	15/15	31,100	33,021

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Furniture Assemblers and Installers	8,578	10,473	1,895	22.1	1/1	16,391	18,286
Welfare Investigators	11,746	13,627	1,881	16.0	2/2	23,606	25,487
Cutter-Finisher Operators, Rubber Goods	7,184	9,055	1,871	26.0	6/6	30,291	32,162
Fence Erectors	6,916	8,787	1,871	27.1	1/1	16,184	18,055
Circulation Clerk	10,365	12,210	1,854	17.9	1/1	11,402	13,256
*Household Appliance Installers	9,797	11,625	1,828	18.7	2/2	15,812	17,640
Scalp Treatment Operators	4,494	6,289	1,795	39.9	1/1	22,617	24,412
Forging Press Operators	8,727	10,506	1,779	20.4	3/3	28,802	30,581
Rolling Mill Operators and Helpers	10,773	12,443	1,670	15.5	8/11	14,445	16,115

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
*Plasterers	16,366	18,005	1,639	10.0	0/3	14,177	15,816
Health Aides, except Nursing	4,701	6,320	1,619	34.4	2/2	20,399	22,018
Telephone Ad Takers Newspapers	9,324	10,931	1,607	17.2	1/1	20,167	21,774
Upholstery Cutters	6,802	8,377	1,575	23.2	2/2	13,623	15,198
Dryers	13,345	14,902	1,557	11.7	9/9	13,468	15,025
Nailing Machine Operators	9,352	10,908	1,556	16.6	3/3	25,191	26,747
Refractory Materials Repairers	7,734	9,255	1,521	19.7	10/11	13,156	14,677
*Forest Conservation Workers	12,467	13,979	1,512	12.1	7/8	35,547	37,059
Furnace Operators and Heater Helpers	8,316	9,811	1,495	18.0	5/5	24,204	25,699
Travel Counselors, Auto Club	7,242	8,725	1,493	20.6	2/2	18,762	20,255

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Header Operators	5,385	6,870	1,485	27.6	2/2	24,042	25,527
Coil Finishers	7,422	8,874	1,452	19.6	1/1	23,507	24,959
Guides, Sightseeing and Establishment	6,091	7,534	1,443	23.7	5/5	18,181	19,624
Decorators, Hand	4,748	6,170	1,422	29.9	21/22	12,300	13,722
Streetcar Operators	8,183	9,595	1,412	17.3	2/2	14,924	16,336
Shaper and Router Operators	4,655	6,048	1,393	29.9	9/9	22,552	23,945
All Other Winding Operators, Nec	7,307	8,658	1,351	18.5	5/6	21,872	23,223
Knitting Machine Operators	21,878	23,211	1,333	6.1	3/3	21,581	22,914
*Furniture Upholsterers	12,555	13,886	1,331	10.6	1/3	11,513	12,844
Insurance Clerks, except Medical	9,637	10,946	1,309	13.6	2/2	16,427	17,736
*Vocational & Educational Counselors	8,100	9,400	1,300	16.0	0/16	7,995	9,295

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Aircraft Structure and Surfaces Assemblers	25,353	26,644	1,291	5.1	5/5	11,167	12,458
Reducing Instructors	23,626	24,911	1,285	5.4	1/1	7,902	9,187
Cutters, Portable Machine	16,492	17,766	1,274	7.7	1/1	11,020	12,294
In-File Operators	5,387	6,634	1,247	23.1	1/1	20,188	21,435
Heaters, Metal	6,502	7,745	1,243	19.1	2/2	10,751	11,994
Mill and Grinder Operators, Minerals	11,745	12,987	1,242	10.6	19/20	20,107	21,349
*Veterinarians	14,549	15,785	1,236	8.5	0/11	7,601	8,837
Lathe Operators, except Metal	4,532	5,768	1,236	27.3	20/20	20,010	21,246
Electrical Instrument and Tool Repairers	8,177	9,318	1,141	14.0	2/2	9,869	11,010

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 1,000 to 4,999							
Furnace Chargers	5,530	6,651	1,121	20.3	4/4	18,148	19,269
Platemakers	13,502	14,620	1,118	8.3	2/4	9,670	10,788
Shear and Slitter Setters	5,462	6,551	1,089	19.9	2/2	9,419	10,508
Mobile Home Repairers	5,570	6,639	1,069	19.2	1/1	9,246	10,315
Water Meter Installers	6,135	7,193	1,058	17.2	1/1	9,151	10,209
Boring Machine Operators, Wood	4,184	5,230	1,046	25.0	8/8	16,934	17,980
Coremakers, Hand, Bench, Floor	9,109	10,129	1,020	11.2	2/2	8,823	9,843
Oil Pumpers	15,107	16,120	1,013	6.7	1/1	8,762	9,775
Fire Inspectors	5,872	6,883	1,011	17.2	2/3	12,738	13,749
Increase 999 to Decrease 999							
Spinners, Frame	30,547	31,500	953	3.1	3/3	8,243	9,196

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Manicurists	8,563	9,493	930	10.9	1/1	11,718	12,648
Bicycle Repairers	6,443	7,369	926	14.4	1/1	8,009	8,935
Tabulating Machine Operators	5,102	5,987	885	17.3	1/1	11,106	11,991
Die Cutters and Clicking Machine Operators	19,680	20,553	873	4.4	10/10	13,745	14,618
Stonemasons	6,406	7,255	849	13.3	1/6	7,343	8,192
Fish and Game Wardens	6,464	7,302	838	13.0	1/2	10,558	11,396
Butchers, All-Around	22,154	22,976	822	3.7	3/3	10,357	11,179
Radio Operators	5,808	6,628	822	14.1	4/8	13,275	14,095
Paperhangers	5,019	5,762	743	14.8		6,426	7,169
*Sailors and Deckhands	33,825	34,551	726	2.1	5/6	7,528	8,254

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Rotary Drill Operator Helpers	36,508	37,171	663	1.8	1/1	10,733	11,396
Transportation Agents	21,313	21,956	643	3.0	2/2	8,069	8,712
Boners, Meat	16,488	17,117	629	3.8	1/1	7,925	8,554
All Other Packing and Inspection Operatives	11,120	11,738	618	5.6	12/12	10,005	10,623
Trim Saw Operators	6,156	6,745	589	9.6	3/3	9,535	10,124
Masseurs and Masseuses	5,278	5,860	582	11.0	2/2	7,333	7,915
Winders, Paper Machine	5,644	6,185	541	9.6	1/1	8,758	9,299
Cloth Finishing Range Operators and Tenders	4,577	5,095	518	11.3	4/4	8,386	8,904
Rotary Drill Operators	20,761	21,266	505	2.4	3/3	8,175	8,680

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Pressers, Machine	53,032	53,534	502	0.9	5/5	8,127	8,629
Lumber Graders	5,716	6,190	474	8.3	2/2	4,100	4,574
Gas and Electric Meter Installers	4,335	4,773	438	10.1	3/4	3,788	4,226
Section Repairers and Setters	13,553	13,964	411	3.0	10/13	3,555	3,966
Motion Picture Projectionists	19,304	19,680	376	1.9	1/1	3,252	3,628
Head Sawyers	6,136	6,512	376	6.1	4/5	6,087	6,463
Setters and Drawers	7,157	7,524	367	5.1	4/4	8,628	8,995
Patternmakers, Nec	1,374	1,727	353	25.7	8/15	3,053	3,406
Millers	6,204	6,518	314	5.1	21/23	2,716	3,030
Edgers, Automatic and Pony	5,645	5,949	304	5.4	2/2	2,629	2,933
All Other Furnace Operators and Tenders exc. Metal	6,188	6,482	294	4.8	15/15	4,759	5,053

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Log Inspectors, Graders and Scalers	5,294	5,569	275	5.2	4/4	2,378	2,653
All Other Telephone Operators	5,413	5,686	273	5.0	2/2	3,426	3,699
Stone Cutters and Carvers	1,677	1,931	254	15.1	2/5	2,197	2,451
Seamless Hosiery Knitters	5,212	5,464	252	4.8	2/2	2,179	2,431
Well Pullers	6,455	6,662	207	3.2	1/1	1,790	1,997
Gagers	7,224	7,428	204	2.8	1/1	1,764	1,968
Watchmakers	6,662	6,832	170	2.6	3/5	1,470	1,640
Machine Setters, Paper Goods	9,955	10,089	134	1.3	2/2	1,159	1,293
Cloth Graders	8,312	8,440	128	1.5	1/1	2,072	2,200
Graders, Food and Skins	6,461	6,546	85	1.3	16/17	1,376	1,461

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Technical Assistants, Library	35,463	35,493	30	0.1	3/4	376	406
Pinsetter Mechanics, Automatic	6,528	6,555	27	0.4	2/2	233	260
Misc. Machine Operatives, Leather and Leather Goods	8,033	8,059	26	0.3	18/19	420	446
Locomotive Engineers	46,818	46,701	-117	-0.2	3/4	N/A	N/A
Mixing Operatives	51,033	50,883	-150	-0.3	6/6		
Roustabouts	78,526	78,331	-195	-0.2	1/1		
All Other Protective Service Workers	4,220	3,976	-224	-5.8	3/3		
Auxiliary Equipment Operators	8,295	7,992	-303	-3.7	1/1		
Menders	9,685	9,326	-359	-3.7	6/6		
Bindery Workers, Stitching	10,441	10,079	-362	-3.5	4/4		

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Increase 999 to Decrease 999							
Transport Equipment Operatives, Nec	7,074	6,626	-448	-6.3	3/3		
Food Shapers, Hand	4,431	3,927	-504	-11.4	4/4		
Lathers	11,116	10,602	-514	-4.6	2/2	N/A	N/A
Cutting Machine Operators, Food	11,692	11,136	-556	-4.8	14/14		
Beam Warper Tenders and Beamers	9,970	9,374	-596	-6.0	2/2		
Photoengravers	10,146	9,492	-654	-6.4	4/14	N/A	N/A
Shoe Repairers	5,732	5,081	-651	-11.4	2/3		
*Drycleaners, Hand and Machine	14,615	13,872	-743	-5.1	6/6		
Frame Wirers	13,254	12,460	-794	-6.0	1/1		
Derrick Operators, Petroleum and Gas	16,401	15,596	-805	-4.9	2/2		
Laundry Machine Mechanics	5,425	4,483	-942	-17.4	1/1		

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Decrease 1,000 or more							
*Yard Clerks	5,566	4,531	-1,035	-18.6	1/1		
Trouble Locators, Test Deck	19,381	18,275	-1,106	-5.7	1/2		
Rug Cleaners, Hand and Machine	6,681	5,525	-1,156	-17.3	3/3		
Spotters, Dryclean-ing and Washable Materials	7,237	5,947	-1,290	-17.8	2/2		
Reservation Agents	56,182	54,889	-1,293	-2.3	2/2		
Logging Tractor Operators	13,380	11,883	-1,497	-11.2	2/2		
Telegraph Operators	15,350	13,523	-1,827	-11.9	4/4		
Ticket Agents	52,579	50,418	-2,161	-4.1	2/2		
Weavers	34,326	31,433	-2,893	-8.4	15/15		

OES Occupational Title	Employment		1980-90 Change		Ratio of Applicable D.O.T. Titles**	Estimated Replacement Needs by 1990	Estimated Total Job Openings by 1990
	1980	1990	Absolute	Percent			
Decrease 1,000 or More							
*Fallers and Buckers	22,518	19,433	-3,085	-13.7	6/6		
*Bindery Workers, Assembly	43,731	39,170	-4,561	-10.4	7/7		
Cooks, Private Household	23,000	18,314	-4,686	-20.4	1/1		
Locomotive Engineer Helpers	10,989	4,388	-6,601	-60.1	1/1		
Postal Clerks	316,328	309,469	-6,859	-2.2	3/3		
Railroad Brake Operators	74,058	66,686	-7,372	-10.0	5/5		
Shoemaking Machine Operators	64,568	53,982	-10,586	-16.4	2/2		
Compositors and Typesetters	118,690	106,643	-12,047	-10.1	14/16		
*Stenographers	278,731	253,414	-25,317	-9.1	4/4		
*Keypunch Operators	324,186	292,766	-31,420	-9.7	5/5		

Source: BLS and Iowa SCIIC. The Selected occupations are Occupational Employment Series titles which include one or more Dictionary of Occupational Title occupations which meet the screening criteria for identifying jobs potentially suitable for Job Corps Vocational Training: Required language level of high school graduate or less, and specific Vocational Preparation time of 90 days to 2 years.

* Indicates OES occupation for which Job Corps provided training from which at least 1 Corpsmember was terminated in FY 1982.

** Indicates the number of DOT-listed occupations which meet the study screening criteria out of the total number of DOT-listed occupations grouped together in the OES occupational title (e.g., Secretary -- 5 out of 6). A O/N indicates the occupation exceeds the screening criteria.

\# Indicates that the ratio used to estimate replacement needs is based on the total employment/replacement needs estimates for discrete OES occupations in BLS, Occupational Projections and Training Needs, 1982 edition. Other occupations' replacement needs ratios calculated from appropriate occupational group total shown in Table II-B-1, from the same source.

@ Indicates no terminees report, but occupation is a common "step-off" in curricula leading to more advanced competencies.

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
01. Sub-Professional					
A. Draftsman	Drafters - 10080600	87,684	2/38	017.281.018 017.281.014	Drafter, assistant Drafter, apprentice
B. Commercial/Graphic Artist	All other technicians, except health, science, and engineering - 10141404	18,762	16/41	979.382.010	Graphic arts technician
C. Cosmetologist	Cosmetologists and women's hair stylists - 70082001	27,453	3/3	332.271.010 332.271.014	Cosmetologist Cosmetologist, apprentice
D. Engineering Aide/ Rodman-Chainman	Surveyors - 10081600	11,568	0/13	018.167.034	Surveyor assistant, instrument
J. Electronic Technician	Electrical and electronic technicians 10080803	106,841	0/7	033.161.014	Electronic technician
M. Professional (Program Aide)	Recreation workers group - 10243201 (all other managers)	21,891	3/4	195.227.010 187.137.010	Program aide, group work Recreation supervisor
N. Resident Counselor	Vocational and educational counselors - 10243600	1,300	0/16	045.107.038	Resident counselor

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
02. Clerical and Sales					
A. Clerk-Typist	Typists - 40020600	184,163	10/10	203.362.010 203.582.066	Clerk-typist Typist
C. Duplicating Machine Operator	Duplicating machine operators - 40040800	4,564	5/5	207.682.014	Duplicating machine operator 2
D. Keypunch Operator	Keypunch operators - 40041000	-31,420	5/5	203.582.030 203.582.070 203.582.022	Keypunch operator Verified operator Data typist
E. Stock Clerk	Stock clerks, stock rooms and warehouses - 40065404	142,176	25/25	222.387.026 222.387.058 222.387.050	Inventory clerk Stock Clerk Shipping and receiv-clerk clerk
F. Retail Sales Clerk	Sales clerks - 3001802	465,331	15/15	290.477.014 279.357.054	Sales clerk Salesperson, general merchandise
G. Accounting Clerk	Accounting clerks - 40060601	94,552	48/48	216.482.010 216.382.010	Accounting clerk Accounting clerk, data processing
H. Secretary	Secretaries - 40020200	700,743	5/6	201.362.030	Secretary
I. Bookkeeper	Bookkeepers, hand - 40060603	168,866	2/2	210.382.014 210.382.010 210.382.046	Bookkeeper 1 Audit clerk General ledger bookkeeper
J. Calculating Machine Operator	All other office machine operators - 40041400	16,265	17/17	216.482.022	Calculating machine operator

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
02. Continued					
K. Mail Clerk	Mail clerks - 40063402	13,405	11/11	209.587.026	Mail clerk
L. Cashier/Checker	Cashiers - 40060800	446,437	17/17	211.462.014 211.462.010 211.362.010	Cashier/checker Cashier 2 Cashier 1
M. Clerk, General	General clerks, office 40066811	366,773	7/7	209.562.010 219.362.010	Clerk, general Administrative clerk
N. Credit Clerk	All other clerical workers - 40066899	174,815	187/193	209.362.018	Credit-reference clerk
O. Medical Secretary	Secretaries - 40020200	700,743	5/6	201.362.014	Medical secretary
P. Receptionist	Receptionists - 40064802	97,506	3/3	237.367.038	Receptionist
Q. Teller	Tellers - 40060203	108,227	6/6	211.362.018	Teller
R. Stenographer	Stenographers - 40020400	-25,317	4/4	202.362.014	Stenographer
T. Telephone Operator	Switchboard operators - 40066201	9,260	4/4	235.662.022	Telephone operator
V. Vari-Typist	Typist - 40020600	184,163	10/10	203.582.066	Typist
W. Ward Clerk	General clerks, office - 40066811	366,773	7/7	245.362.014	Ward clerk
Y. Railway Clerk	Yard clerks - 40065405 Mail clerks - 40063402	-1,035	1/1	209.367.054 222.367.022	Yard clerk Express clerk

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
02. Continued					
Z. Computer Operator	Computer operators - 40040601	132,140	1/1	213.362.010	Computer operator
03. Service Occupations					
B. Custodial Maintenance	Janitors and sextons - 70020600	491,460	13/13	382.664.010	Janitor
	Maintenance repairers, general utility - 50144821	126,645	0/2	899.381.010	Maintenance repairer, building
C. Security Guard	Guards and doorkeepers - 70100601	152,720	9/9	372.667.034	Guard, security
H. Patrolman/Policeman	Police patrolman/women - 70101006	65,951	5/5	375.263.014	Police officer
J. Teacher Aide	Teachers' aides except monitors - 40065600	78,056	3/3	249.367.074	Teacher aide 2
K. Teacher, Nursery School	Child care workers - 70081602	78,033	2/2	359.677.018	Nursery school attendant
M. Animal Caretaker	Animal caretakers - 80000200	10,222	8/8	410.674.010	Animal caretakers
N. Social Worker Technician	All other managers - 20061699	1,012,649	46/387	187.137.010	Recreational supervisor
Q. Dry Cleaner	Dry cleaners, hand and machine - 61082807	-743	6/6	362.382.014	Dry cleaner
R. Highway Maintenance	Highway maintenance workers - 80000628	25,178	1/1	899.684.014	Highway maintenance worker

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
03. Continued					
S. Housekeeper	Janitors and sextons - 70020600	491,460	13/13	323.689.014	Cleaner, housekeeper
T. Water and Waste Water	Water treatment plant operators - 50144025	5,161	2/2	551.485.010	Water treatment plant operator
	Sewage plant operators - 50144013	2,077	2/2	955.585.010	Wastewater treatment plant attendant
04. Forestry, Farming and Gardening					
B. Nursery Worker, Landscape Assistant, Groundskeeper	Gardeners and groundskeepers, except farm - 80001400	75,641	8/9	408.161.010	Landscape gardener
				408.181.010	Tree surgeon
				405.684.014	Horticultural worker1
				406.684.014	Groundskeeper, industrial and commercial
C. Forestry and Conservation Worker	Forest conservation workers - 80002831	1,512	7/8	452.364.010	Forestry aide
H. Pest Control	Exterminators - 61089204	8,097	1/1	389.684.010	Exterminators
05. Food Service					
A. Waiter or Waitress	Waiters and waitresses - 70041602	361,488	7/7	311.477.030	Waiter/waitress, informal
				311.477.026	Waiter/waitress, formal
B. Cook	Cooks, restaurant - 70040803	86,720	4/10	313.361.014	Cook
				313.361.018	Cook, apprentice
				315.361.010	Cook, institutional

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
05. Continued					
B. Cook (Continued)	Cooks, institutional - 70040804 (Bakers, bread and pastry - 70040200) (Kitchen helpers - 70041802)	56,002	6/7	313.381.010 317.687.010 318.687.010	Baker Cook, helper Kitchen helper
C. Baker	Baker, bread and pastry - 70040200	9,137	2/6	313.381.010	Baker
	(Bakers - 50140202)	9,758	2/8	526.381.010	Baker
	(do)			526.686.010	Baker
				313.361.010	Baker, second
D. Meat Cutter	Butchers and meat cutters - 70041400	23,923	6/6	316.684.018 316.684.022	Meat cutter Meat cutter, apprentice
E. Baker, Helper	Kitchen helpers - 70041802	231,780	8/8	526.686.010	Baker, helper
G. Cook, Short Order	Cooks, short order and speciality fast foods - 70040802	93,536	4/4	313.361.022 313.677.010	Cook, short order 1 Cook, short order 2
H. Counter	All other food service workers - 70041899	110,760	14/15	331.677.014	Counter attendant, cafeteria
I. Pantry/Salad	Pantry, sandwich and coffee-makers - 70041805	20,227	4/4	317.684.014 317.384.010	Pantry goods maker Salad maker
L. Kitchen Helper	Kitchen helpers - 70041802	231,780	8/8	318.687.010	Kitchen helper

Table II C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
06. Automotive and Machinery Repair					
A. Auto Mechanic Helper	Helper, trades - 80002823	209,260	108/108	620.684.014	Automobile-mechanic helper
	(Automotive mechanics 50081001)			620.261.010	Automobile mechanic
	(Engineering equipment mechanics - 50081803)			620.261.022	Construction-equipment mechanic
B. Automobile Service Repairer (Mechanic)	Automotive mechanics - 50081001	179,942	17/29	620.261.010	Automobile mechanic
				620.261.012	Automobile mechanic, apprentice
				620.281.066	Tune-up mechanic
C. Farm Truck, Heavy Equipment Repairman	Engineering equipment mechanic - 50081803	10,003	0/5	620.684.014	Truck mechanic helper
D. Small Gas Engine Repairer	All other mechanics, repairers and installers - 50083299	28,238	85/133	625.281.034	Small engine mechanic
E. Auto Body Repairer	Auto body repairers - 50080800	23,324	3/4	807.381.010	Automobile-body repairer
	(Helper, trades - 80008223)			807.687.010	Automobile-body repairer, helper
F. Auto Parts Clerk	All other sales workers - 30001899	536,274	61/70	279.357.062	Salesperson, parts
H. Service Station Attendant	Fuel pump attendant and lubricators - 61082605	74,100	4/4	915.467.010	Automobile-service station attendant

Table II C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure 1/	Occupational Employment Statistics			Dictionary of Occupational Titles 2/	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
06. Continued					
I. Automobile Upholsterer	Upholsterers - 50144605	5,340	6/7	780.381.014	Automobile upholsterer, apprentice
L. Brake Mechanic, Automobile/Brake Repairer	Automotive mechanics - 50081001	179,942	17/29	620.281.026	Brake repairer
N. Diesel Mechanic	Diesel mechanics - 50083222	38,438	0/6	625.281.010	Diesel mechanic
R. Repairer, Heavy Heavy Equipment Repair	Engineering equipment mechanics - 50081803	10,003	0/5	620.261.022	Construction equipment mechanic
S. Transmission Mechanic	Automotive mechanics - 50081001	179,942	17/29	620.281.062	Transmission mechanic
07. Construction Trades					
A. Carpenter, Construction	Carpenters - 50020201	119,114	9/26	860.381.022	Carpenter
				860.381.026	Carpenter, apprentice
				860.381.042	Carpenter, rough
				860.281.010	Carpenter, maintenance
	(Helper, trades - 80002823)			869.664.014	Construction worker 1

Table II C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
07. Continued					
B. Electrician	Electricians - 50021401	90,617	4/22	824.261.010	Electrician
				824.261.014	Electrician, apprentice
				825.281.014	Electrician
				825.281.030	Electrician (marine)
C. Cement Mason	Concrete and terrazo finishers - 50021200	37,098	1/6	844.364.010	Cement mason
				844.364.014	Cement mason, apprentice
				869.664.016	Cement helper
D. Brick and Stone Mason	Brickmason - 50020601	33,975	0/4	861.381.014	Bricklayer
				861.381.018	Bricklayer
				861.381.022	Bricklayer, apprentice
				861.687.010	Bricklayer, helper-fractory
	(Helper, trades - 80002823)			869.664.017	Bricklayer helper
E. Painter - Paperhanger	Painters, construction and maintenance - 50022000	33,840	1/6	840.381.010	Painter
				840.381.014	Painter, apprentice, shipyard
	(All other craft and related workers - 50144899)			970.381.026	Painter, sign
F. Heavy Equipment Operator	Heavy equipment operators - 50021807	72,663	33/34	859.683.010	Operating engineer

Table II C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
07. Continued					
G. Furnace Installer and Repairer, Hot Oil Furnace Repairer	Air conditioning, heating, and refrigeration mechanics - 50080200	30,389	2/9	862.281.018 862.271.010	Oil-burner servicer and repairer Furnace installer (light, heat and power)
H. Plumber	Plumbers and pipefitters - 50032303	71,805	4/14	862.381.030 862.381.018 862.381.034 862.684.026	Plumber Pipefitter Plumber, apprentice Plumbing assembler-installer
	(Helper, trades - 80002823)			869.664.019	Plumber's helper
I. Plasterer	Plasterers - 50022801	1,639	0/3	842.361.022 842.361.018	Plasterer, apprentice Plasterer
J. Tilesetter	Tilesetters - 50024001	5,099	1/3	861.381.058	
K. Construction Laborer	Helper, trades - 80002823	209,260	108/108	869.664.014	Construction worker 1
L. Welder, Spot (Tack Welder)	Welders & Flamecutters - 61022000	107,063	47/54	819.384.010 819.384.008	Welder, combination Welder, combination apprentice
M. Fiberglass	Miscellaneous operatives n.e.c. - 61088800	23,775	48/54	754.684.042	Plastics fabricator
N. Floor Layer	Ceiling tile installers and floor layers - 50024002	6,320	2/5	864.481.010 864.481.014	Floor layer Floor layer, apprentice

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
07. Continued					
O. Glazing	Glaziers - 50151802	8,519	3/5	865.381.010 865.381.014	Glazier Glazier, apprentice
P. Insulation	Asbestos and insulation workers - 61080200	12,977	2/5	863.644.010	Blower, insulation
Q. Painting, Cleaning and Caulking	Helper, trades - 80002823	209,260	108/108	869.644.(014)	Construction worker
08. Electrical/Appliance Repair					
A. Air Conditioning/Refrigeration Mechanic	Air conditioning, heating and refrigeration mechanics - 50080200	30,389	2/9	637.261.026 637.261.014	Refrigeration mechanic Environmental control systems installer
B. Air Conditioning Installer	Household appliance installers - 50082007	1,828	2/2	827.464.010 637.261.010	Air conditioning installer, domestic Air conditioning servicer
C. Electrical Appliance Repairer	Gas and electric appliance repairer - 50082005	3,928	3/5	723.381.010 723.584.010 827.261.014	Electrical appliance Major appliance repairer Electrical appliance servicer, apprentice

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
08. Continued					
D. Radio and TV Repairer	Radio and TV repairers - 50082600	13,506	3/7	720.281.018	Television and radio repairer
E. Office Machine Repairer	Office machine and cash register servicers - 50082400	31,986	3/8	633.281.018 706.381.030	Office machine servicer Repairer, typewriter
G. Electrician, Helper	Helper, trades - 80002023	209,260	108/108	829.684.022	Electrician, helper
J. Electronic Repairs	Data processing machine mechanics - 50081400	77,296	1/4	828.281.010 828.281.014	Electronics mechanic Electronics mechanic, apprentice
K. Solar Installer	INA	(9,500 [3])	(18/5 [3])	637.261.030	Solar energy system installer
L. Telecommunications	Installers, repairers; and system maintenance - 50121002	11,515	0/5	822.361.014	Center office installer
09. Industrial Production					
A. Machine Operator/ Machine Set-up (Multiple Machines)	Machine tool operators, combination - 61021402	29,084	5/6	600.380.018 601.280.054	Machine set-up operator Tool machine set-up operator

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
09. Continued					
B. Combination Welder	Welders and flamecutters - 61022000	107,063	47/54	819.384.010	Welder, combination
				819.384.008	Welder, combination, apprentice
	(All other laborers, exc. farm - 80002899			810.384.010	Welder, apprentice, arc
				810.384.014	Welder, arc
				811.684.010	Welder, apprentice, gas
				811.684.014	Welder, gas
				819.361.014	Welder, fitter, apprentice
C. Sheet Metal Worker	Sheet metal workers and tinsmiths - 50062600	33,070	0/5	804.281.010	Sheet metal worker
				804.281.014	Sheet metal worker, apprentice
D. Furniture Upholsterer	Furniture upholsterers - 50144601	1,331	1/3	780.381.018	Furniture upholsterer
E. Electronics Assembler	All other assemblers - 61080440	241,061	369/392	726.684.018	Electronics assembler
				729.384.010	Assembler, electrical accessories 2
				813.684.014	Solderer assembler
F. Offset Printer	Offset lithographic press operators - 50101202	11,272	2/5	651.482.010	Offset press operator 1
				651.380.010	Printer 2
	(All other craft and related workers - 50144899)			651.682.014	Offset duplicating machine operator

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
09. Continued					
J. Welder, Gas Metal Arc (MIG/TIG)	Welder and flamecutters - 61022000	107,063	47/54	810.384.014	Welder, gas metal arc
O. Tailor, Apprentice Custom/Tailor	Tailors - 50144400	7,715	2/6	785.261.018	Tailor, apprentice, custom
Q. Machine Operator, Single-Drill Press	Drill press and boring machine operators - 61020201	23,081	20/22	606.280.010 606.682.014 606.682.014	Boring-mill set-up operator, jig Drill-press operator
R. Machine Operator, Single-Grinder	Grinding and abraiding machine operators - 61020600	22,068	38/44	603.280.014 603.685.062	Grinder operator, tool Grinder operator, production
S. Machine Operator, Single-Lathe	Lathe machine operators, metal - 61021006	29,404	33/38	604.685.026	Lathe operator, production
U. Machinist	Machinists - 50061206	44,255	0/11	600.280.022 600.280.026	Machinist Machinist, apprentice
V. Machine Operator, Single-Milling	Milling and planing machine operators - 61021007	10,617	27/33	605.280.010	Milling machine set-up operator 1
10. Transportation					
A. Truck Driver, Heavy/ Light	Truck drivers - 62002201	356,222	21/21	906.683.022 921.683.050	Truck driver, light Industrial truck operator

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
10. Continued					
B. Warehouseman, Hand	Order fillers - 80002001	43,470	3/3	922.687.058 929.687.030	Laborer, stores Material handler
C. Forklift Operator	Industrial truck operators - 62001001	59,356	9/9	921.683.050	Industrial truck operator
D. Deckhand	Sailors and deckhands - 61084803	726	5/6	911.687.022	Deckhand
11. Health Occupations					
A. Nurse's Assistant	Nurse's aides and orderlies - 70061010	506,359	4/4	355.674.014 355.674.018	Nurse's aide Orderly
B. Dental Assistant	Dental assistants - 10120401	54,360	1/1	079.371.010	Dental assistant
C. Licensed Practical Nurse	Licensed practical nurses - 10121010	177,876	1/1	079.374.014	Nurse, licensed practical
D. Veterinary Assistant	Veterinarians - 10102000	1,236	0/11	073.101.010	Veterinarian
E. Attendant, Physical Therapy/Physical Therapy Aide	Physical therapy technicians - 10121012	5,410	2/2	355.354.010	Physical therapy aide
F. Electrocardiograph Technician/EKG Technician	Electrocardiograph technicians - 10121006	6,512	1/1	078.362.018	Electrocardiograph technician

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure [1]	Occupational Employment Statistics			Dictionary of Occupational Titles [2]	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title
11. Continued					
H. Inhalation Therapist	Inhalation therapists - 10101809	7,704	1/1	079.361.010	Respiratory therapist
I. Medical Laboratory Assistant/Laboratory Technician Assistant	Medical technicians - 10120206 (All other health technologists and technicians - 10121099)	31,040	1/2	078.381.010 078.687.010	Medical laboratory assistant Laboratory assistant, blood and plasma
J. Nurse, Professional	Nurses, professional - 10100800	437,418	0/15	075.374.010	Nurse, general duty
K. Psychiatric Aide	Psychiatric aides - 70061011	32,808	1/1	355.377.014	Psychiatric aide
L. Radiologic Technologist/X-Ray Technician Assistant	X-ray technicians - 10120801	33,909	1/1	078.362.026	Radiologic technologist
M. Tray-Line Worker/ Hospital Dietician Aide	All other food service workers - 70041899	110,760	14/14	355.677.101	Food service worker, hospital
S. Medical Assistant	Medical assistants - 70060400	26,447	4/4	079.367.010	Medical service technician
U. Recreational Therapy	Manual arts, musical, recreational therapists - 10101802	10,938	1/3	076.124.014	Recreation therapist

Table II-C-1. Job Corps Vocational Training Structure - Occupational Employment Statistics - Dictionary of Occupational Titles Crosswalk

Job Corps Vocational Training Structure 1/	Occupational Employment Statistics			Dictionary of Occupational Titles 2/	
	Title and Number	Employment Chg. 1980-90	Ratio of D.O.T.s	D.O.T. Number	Title

1) Occupational classification structure in use in FY 1982 and used in the VORP. Only occupations in which at least one corpsmember terminee was reported trained are shown in this crosswalk.
2) D.O.T. numbers reported by the majority of facilities training in each occupation.
3) Not in published survey, BLS staff judgment derived figures shown.